

§ 25.391

(b) If the device has automatic operating or load limiting features, the airplane must be designed for the maneuver and gust conditions prescribed in paragraph (a) of this section, at the speeds and corresponding device positions that the mechanism allows.

[Doc. No. 5066, 29 FR 18291, Dec. 24, 1964, as amended by Amdt. 25-72, 55 FR 29776, July 20, 1990; Amdt. 25-86, 61 FR 5222, Feb. 9, 1996]

EFFECTIVE DATE NOTE: At 79 FR 73468, Dec. 11, 2014, §25.373 was amended by revising paragraph (a), effective Feb. 9, 2015. For the convenience of the user, the revised text is set forth as follows:

§ 25.373 Speed control devices.

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(a) The airplane must be designed for the symmetrical maneuvers prescribed in §§25.333 and 25.337, the yawing maneuvers in §25.351, and the vertical and lateral gust and turbulence conditions prescribed in §25.341(a) and (b) at each setting and the maximum speed associated with that setting; and

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CONTROL SURFACE AND SYSTEM LOADS

§ 25.391 Control surface loads: General.

The control surfaces must be designed for the limit loads resulting from the flight conditions in §§25.331, 25.341(a), 25.349 and 25.351 and the ground gust conditions in §25.415, considering the requirements for—

- (a) Loads parallel to hinge line, in §25.393;
- (b) Pilot effort effects, in §25.397;
- (c) Trim tab effects, in §25.407;
- (d) Unsymmetrical loads, in §25.427; and
- (e) Auxiliary aerodynamic surfaces, in §25.445.

[Doc. No. 5066, 29 FR 18291, Dec. 24, 1964, as amended by Amdt. 25-86, 61 FR 5222, Feb. 9, 1996]

EFFECTIVE DATE NOTE: At 79 FR 73468, Dec. 11, 2014, §25.391 was amended by revising the introductory text, effective Feb. 9, 2015. For the convenience of the user, the revised text is set forth as follows:

§ 25.391 Control surface loads: General.

The control surfaces must be designed for the limit loads resulting from the flight conditions in §§25.331, 25.341(a) and (b), 25.349,

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and 25.351, considering the requirements for—

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§ 25.393 Loads parallel to hinge line.

(a) Control surfaces and supporting hinge brackets must be designed for inertia loads acting parallel to the hinge line.

(b) In the absence of more rational data, the inertia loads may be assumed to be equal to KW , where—

- (1) $K=24$ for vertical surfaces;
- (2) $K=12$ for horizontal surfaces; and
- (3) W =weight of the movable surfaces.

§ 25.395 Control system.

(a) Longitudinal, lateral, directional, and drag control system and their supporting structures must be designed for loads corresponding to 125 percent of the computed hinge moments of the movable control surface in the conditions prescribed in §25.391.

(b) The system limit loads, except the loads resulting from ground gusts, need not exceed the loads that can be produced by the pilot (or pilots) and by automatic or power devices operating the controls.

(c) The loads must not be less than those resulting from application of the minimum forces prescribed in §25.397(c).

[Doc. No. 5066, 29 FR 18291, Dec. 24, 1964, as amended by Amdt. 25-23, 35 FR 5672, Apr. 8, 1970; Amdt. 25-72, 55 FR 29776, July 20, 1990]

EFFECTIVE DATE NOTE: At 79 FR 73468, Dec. 11, 2014, §25.395 was amended by revising paragraph (b), effective Feb. 9, 2015. For the convenience of the user, the revised text is set forth as follows:

§ 25.395 Control system.

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(b) The system limit loads of paragraph (a) of this section need not exceed the loads that can be produced by the pilot (or pilots) and by automatic or power devices operating the controls.

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§ 25.397 Control system loads.

(a) *General.* The maximum and minimum pilot forces, specified in paragraph (c) of this section, are assumed